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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|-----------------------|
| 09/816,923 | 03/23/2001 | Manfred Engelhardt | GR 98 P 2661 | 6120 |
| 24131 | 7590 | 05/12/2004 | EXAMINER | |
| LERNER AND GREENBERG, PA P O BOX 2480 HOLLYWOOD, FL 33022-2480 | | | | WILLIAMS, ALEXANDER O |
| ART UNIT | | PAPER NUMBER | | |
| | | 2826 | | |

DATE MAILED: 05/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

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|------------------------------|-----------------|---------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 09/816,923 | ENGELHARDT, MANFRED |
| Examiner | Art Unit | |
| Alexander O Williams | 2826 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
 THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 08 March 2004.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-11 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date _____
- 4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date _____
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____

Serial Number: 09/816923 Attorney's Docket #: GR98P2661P
Filing Date: 3/23/2001; claimed foreign priority to 9/23/98

Applicant: Engelhardt

Examiner: Alexander Williams

Applicant's Response filed 3/8/04 has been acknowledged.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

Patentability shall not be negated by the manner in which the invention was made.

Claims 1 to 3 and 7 to 9 are rejected under 35 U.S.C. § 102(b) as being anticipated by Ting et al. (U.S. Patent # 5,969,422).

For example, in claim 1 and similar claim 7, Ting et al. (figures 1 to 5) specifically figure 2 show a integrated circuit configuration, comprising: an insulating layer 11; a first conductive structure 15 embedded in said insulating layer; a diffusion barrier layer 12 and a second insulating layer 21 disposed above said first conductive structure and being formed with a contact hole reaching as far as said first conductive structure and having side walls; a second conductive structure 23 disposed in said contact hole and conductively connected to said first conductive structure; and spacers 22 formed on said side walls of said contact hole above said diffusion barrier layer, said spacers acting as a barrier to diffusion of a material from said first conductive structure into said second insulating layer and reaching as far as a surface of said diffusion barrier layer.

Initially, it is noted that the 35 U.S.C. § 103 rejection based on spacers and second diffusion barrier deals with an issue (i.e., the integration of multiple pieces into one piece or conversely, using multiple pieces in replacing a single piece) that has been previously decided by the courts.

In Howard v. Detroit Stove Works 150 U.S. 164 (1893), the Court held, "it involves no invention to cast in one piece an article which has formerly been cast in two pieces and put together...."

In In re Larson 144 USPQ 347 (CCPA 1965), the term "integral" did not define over a multi-piece structure secured as a single unit. More importantly, the court went further and stated, "we are inclined to agree with the solicitor that the use of a one-piece construction instead of the [multi-piece] structure disclosed in Tuttle et al. would be merely a matter of obvious engineering choice" (bracketed material added). The court cited In re Fridolph for support.

In re Fridolph 135 USPQ 319 (CCPA 1962) deals with submitted affidavits relating to this issue. The underlying issue in In re Fridolph was related to the end result of making a multi-piece structure into a one-piece structure. Generally, favorable patentable weight was accorded if the one-piece structure yielded results not expected from the modification of the two-piece structure into a single piece structure.

Claims 4 to 6, 10 and 11, insofar as they can be understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Ting et al. (U.S. Patent # 5,969,422).

Therefore, it would have been obvious to one of ordinary skill in the art to use the spacers and the second diffusion barrier layer as "merely a matter of obvious engineering choice" as set forth in the above case law.

Response

Applicant's arguments filed 10/16/03 have been fully considered, but are not found to be persuasive in view of the modified grounds of rejections detailed above. Applicant's argument on pages 2 to 6 are not found to be persuasive since the spacers layer of Ting et al. has been change to be **22**. Ting et al. does show the spacer layer **22** is formed on side walls of a contact hole formed in the second insulation layer **21**, which is disposed above a first conductive structure **15**. Furthermore, Ting et al's spacer layer **22** is formed above the diffusion barrier layer **12**. In Ting et al., the spacer **22** (in combination with the diffusion layer **12**) do prevent material from diffusing from the first conductive structure **15** into a second insulting layer **21**.

Accordingly, **THIS ACTION IS MADE FINAL**. See M.P.E.P. § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. § 1.136(a).

A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS FINAL ACTION IS SET TO EXPIRE THREE MONTHS FROM THE DATE OF THIS ACTION. IN THE EVENT A FIRST RESPONSE IS FILED WITHIN TWO MONTHS OF THE MAILING DATE OF THIS FINAL ACTION AND THE ADVISORY ACTION IS NOT MAILED UNTIL AFTER THE END OF THE THREE-MONTH SHORTENED STATUTORY PERIOD, THEN THE SHORTENED STATUTORY PERIOD WILL EXPIRE ON THE DATE THE ADVISORY ACTION IS MAILED, AND ANY EXTENSION FEE PURSUANT TO 37 C.F.R. § 1.136(a) WILL BE CALCULATED FROM THE MAILING DATE OF THE ADVISORY ACTION. IN NO EVENT WILL THE STATUTORY PERIOD FOR RESPONSE EXPIRE LATER THAN SIX MONTHS FROM THE DATE OF THIS FINAL ACTION.

| Field of Search | Date |
|--|--|
| U.S. Class and subclass: 257/758,700,701,704,741,751,750,753,774,773,759,760, 762-765,767 | 9/16/02 3/25/03 7/10/03 1/4/04 5/10/04 |
| Other Documentation: foreign patents and literature in 257/758,700,701,704,741,751,750,753,774,773,759,760, 762-765,767 | 9/16/02 3/25/03 7/10/03 1/4/04 5/10/04 |
| Electronic data base(s): U.S. Patents EAST | 9/16/02 3/25/03 7/10/03 1/4/04 5/10/04 |

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander O Williams whose telephone number is (571) 272 1924. The examiner can normally be reached on M-F 6:30-7:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (571) 272 1915. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AOW
5/11/04



Primary Examiner
Alexander O. Williams